

### ABSTRACT

The present invention features a system and method for estimating body states of a vehicle. The system includes at least two sensors mounted to the vehicle. The sensors generate measured vehicle state signals corresponding to the dynamics of the vehicle. A signal adjuster transforms the measured vehicle states from a sensor coordinate system to a body coordinate system associated with the vehicle. A filter receives the transformed measured vehicle states from the signal adjuster and processes the measured signals into state estimates of the vehicle, such as, for example, the lateral velocity, yaw rate, roll angle, and roll rate of the vehicle.